THE PROGRESS OF SCIENCE

THE CONTROL OF EPIDEMIC DISEASES AND THE CAUSES OF DEATH

THE only redeeming feature of the terrible epidemic of infantile paralysis which began in Brooklyn and has spread as far as Philadelphia and Boston, is the attention which it has directed to the control of communicable disease. It may be that the attitude of the public and of certain health boards has been somewhat hysterical, but as a matter of fact it has only been so in certain directions. Thus less than three per cent. of the cases occur in those over ten years of age, and except in so far as they may be carriers of the disease the risk is so small as scarcely to warrant any quarantine or the closing of a university such as Princeton. It is, however, almost impossible to overestimate the importance of using even drastic measures to suppress epidemics. What has been accomplished with cholera, the plague and small-pox can be done in the case of other diseases.

There are here reproduced several diagrams from the United States Census Reports and the Report of the English Registrar General which show the relative death-rates of different countries and the death-rates from different diseases. It is an extraordinary fact that three times as many people should die in Chile as in New Zealand, twice as many in Hungary as in Sweden. These differences also represent the progress made by the more advanced nations. The death-rate in England, for example, has in the course of fifty years been reduced from 22 to 13 per thousand. People live about twice as long as they did a century ago and about four times as long as they did in the middle ages.

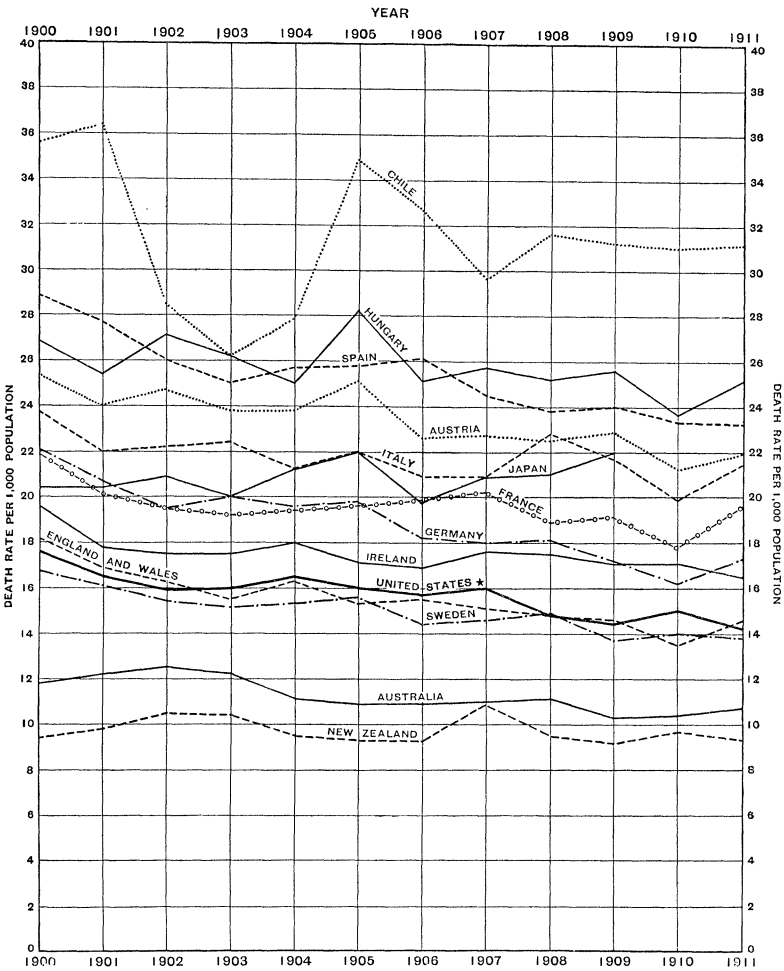
The curves for the principal causes of death in the United States show great so short as twelve years. The most satisfactory aspect of these curves is the decrease in tuberculosis, typhoid and diphtheria, due in the main to three different methods of control, the first to more hygienic conditions of living, the second to suppression of the sources of the epidemic, the last, in part at least, to the antitoxin treatment. There are greater variations in pneumonia and infantile diarrhea, they being influenced by seasonal variations, but on the whole a satisfactory decrease is indicated.

The most unsatisfactory curves are those for the three children's diseases—measles, scarlet fever and whooping cough. They are curiously equal in their incidence and have remained almost constant in their fatality for twelve years. They are far more dangerous than infantile paralysis has hitherto been; they should be regarded with the same dread and their suppression should be undertaken with the same vigor. This is especially indicated by the English figures, where the deaths from these diseases, especially scarlet fever, have greatly decreased. Fifty years ago the annual death-rate from scarlet fever was over 2,600 per million children and this has now been reduced to 250. It is a curious fact that diphtheria since the use of the antitoxin treatment has decreased at only about the same rate as the other diseases, and that it is now as large a cause of death as fifty years ago, while deaths from scarlet fever have been reduced to one tenth.

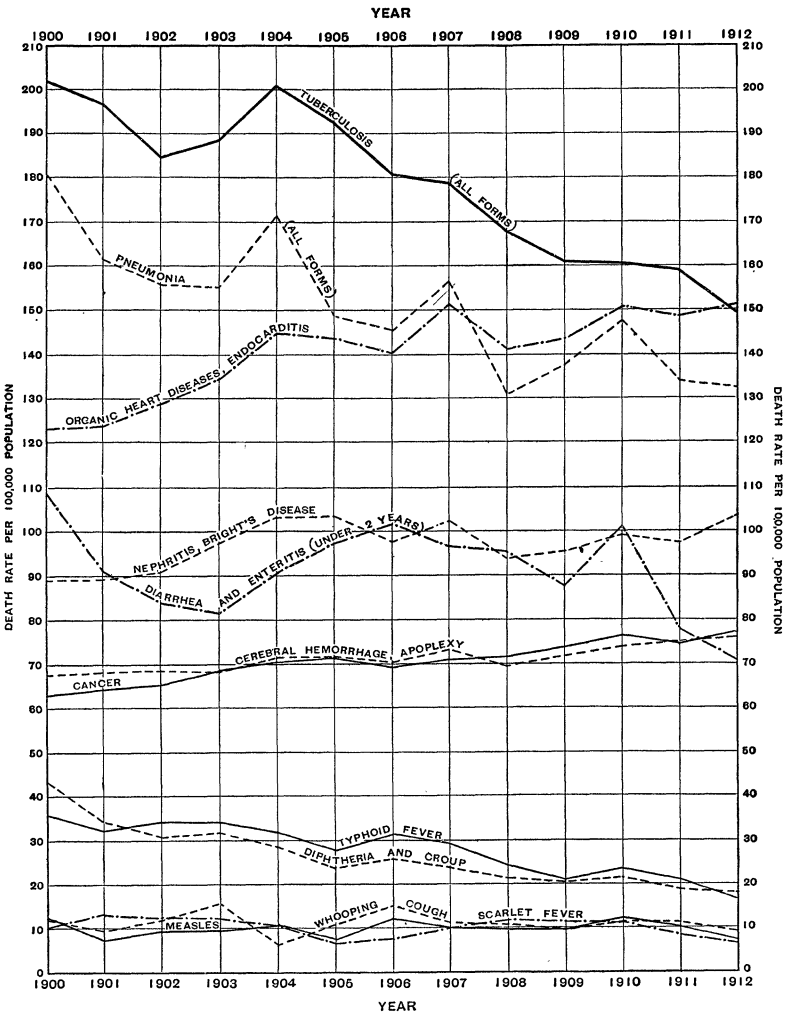
The increase of the organic diseases of later life is marked. Thus the most striking feature in the American statistics is the crossing of the curves for the two most fatal diseases, tuberculosis and heart disease. In 1900 the death

dred thousand, from the latter 122, but in 1912 the rate for heart disease had become higher than for tuberculosis. An increase is also evident in Bright's disease, apoplexy and cancer. The increase of these diseases has attracted public attention, and has been adduced as evidence of the disastrous pressure of the conditions of modern life in cities and the like. As a matter of fact, an increase in the deaths caused by these diseases may be regarded as propitious. People must die, and if we suppress epidemics and the diseases of infancy and youth death must sooner or later occur through some organic failure.

The fact that the death rate between forty and sixty has remained about stationary in recent decades, while the rate for earlier ages has so greatly decreased, is another matter. This has been interpreted to mean that improvements in hygiene and medicine have been offset by bad conditions of living, the use of alcohol and other drugs, the overpressure of business, the pursuit



GENERAL DEATH RATES OF THE UNITED STATES (REGISTRATION AREA) AND CERTAIN FOREIGN COUNTRIES: 1900–1911.



DEATH RATES FROM IMPORTANT CAUSES OF DEATH IN THE REGISTRATION AREA OF THE UNITED STATES: 1900–1912.

of pleasure and the like. But another explanation may be urged. If we preserve the lives of hundreds of thousands of infants who can not be properly nursed by their mothers and of hundreds of thousands of young people of inferior constitution who would previously have succumbed to tuberculosis, we have in the population between forty and sixty a large proportion of people less vigorous than those who would have survived harsher conditions. It is not surprising if they have a higher mortality.

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THE richness of England in men of scientific distinction is shown by the fact that almost every month it is necessary to record the deaths of those who have contributed in important measure to the advancement of science. It may be feared that the even more